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# Bridge Rehabilitation – 5415 Sideline 30 Claremont

*Parks Canada Agency  
Rouge National Urban Park*

## Contract Documents and Specifications

Prepared By;



Prepared For;



Canada

Sign-off Sheet



Structural

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**Part 1            General**

**1.1                REFERENCE STANDARDS**

- .1            Owner/Contractor Agreement.

**1.2                WORK COVERED BY CONTRACT DOCUMENTS**

- .1            Work of this Contract comprises the rehabilitation for the bridge located at 5415 Sideline 30, Claremont including:
  - .1            Removal and Replacement of the nail-laminated wooden timber deck
  - .2            Removal and replacement of the existing handrails and steel beam guiderails with a glued-laminated timber TL-0 barrier and steel pipe hand railing.
  - .3            Removal and replacement of the expansion joint compression seals and the deck side armoring angles.

**1.3                CONTRACT METHOD**

- .1            Construct Work under a Stipulated Price Contract.

**1.4                WORK SEQUENCE**

- .1            Construct Work in stages to accommodate the Owner's and Tenant's permanent pedestrian access and intermittent vehicular use of premises during construction.
  - .1            Tenant to have vehicular access to property when workers not on site.
  - .2            Emergency vehicles to have access to cross bridge within 15 minutes of Contractor being notified of requirement.
- .2            Co-ordinate Progress Schedule and co-ordinate with Owner and Tenant Occupancy during construction.

**1.5                CONTRACTOR USE OF PREMISES**

- .1            Limit use of premises for storage, for Work, for access, to allow:
  - .1            Owner and Tenant occupancy.
  - .2            Work by Contractor and Subcontractors.
- .2            Co-ordinate use of premises under direction of the Contract Administrator.
- .3            Obtain and pay for use of additional storage or work areas needed for operations under this Contract.
- .4            Remove or alter existing work to prevent injury or damage to portions of existing work which remain.
- .5            Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as directed by the Contract Administrator.
- .6            At completion of operations condition of existing work: equal to or better than that which existed before new work started.

**1.6 OWNER OCCUPANCY**

- .1 Owner will occupy premises during entire construction period for execution of normal operations.
- .2 Co-operate with Owner in scheduling operations to minimize conflict and to facilitate Owner and tenant usage.

**1.7 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING STRUCTURE**

- .1 All construction including removals repairs and reinstatements shall be done in a workmanlike manner by competent experienced personal in accordance with applicable codes/standards and the best accepted practices.
- .2 Execute work with least possible interference or disturbance to the public and tenants for normal use of the premises. Arrange with the Contract Administrator to facilitate execution of work.
- .3 Accept liability for damage, safety of equipment and overloading of existing equipment.

**1.8 EXISTING SERVICES**

- .1 Notify, the Contract Administrator and utility companies of intended interruption of services and obtain required permission prior to commencing Work.
- .2 Establish location and extent of service lines in area of work before starting Work. Notify the Contract Administrator of any findings.
- .3 Submit schedule to and obtain approval from the Contract Administrator for any shut-down or closure of active services including power and communication. Adhere to approved schedule and provide notice to affected parties.
- .4 Provide adequate bridging over the waterway to permit Owner and Tenant Access outside of construction hours.
- .5 Where unknown services are encountered, immediately advise the Contract Administrator and confirm findings in writing.
- .6 Protect, relocate or maintain existing active services. When inactive services are encountered, cap off in manner approved by authorities having jurisdiction.
- .7 Record locations of maintained, re-routed and abandoned services.

**1.9 DOCUMENTS REQUIRED**

- .1 Maintain at job site, one copy each document as follows:
  - .1 Contract Drawings.
  - .2 Specifications.
  - .3 Addenda.
  - .4 Reviewed Shop Drawings.
  - .5 List of Outstanding Shop Drawings.
  - .6 Change Orders.
  - .7 Other Modifications to Contract.
  - .8 Field Test Reports.

- .9 Copy of Approved Work Schedule.
- .10 Health and Safety Plan and Other Safety Related Documents.
- .11 Other documents as specified.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not used.

**END OF SECTION**

**Part 1 General**

**1.1 GENERAL**

- .1 The Contract Administrator will schedule the project meetings throughout progress of the Work.
- .2 The Contract Administrator will prepare meeting agenda with regular participant input and distribute the written notice of each meeting, preside at meetings, record minutes to include significant proceedings and decisions, and reproduce and distribute copies of minutes within 5 days after each meeting to participants and parties affected by meeting decisions.
- .3 The Contractor shall provide physical space and make arrangements for meetings at the site as requested by the Contract Administrator.
- .4 Representatives of Contractor, Subcontractor and suppliers attending meetings shall be qualified and authorized to act on behalf of the party each represents.

**1.2 PRECONSTRUCTION MEETING**

- .1 After award of Contract, request a meeting of parties involved in the Contract to discuss and resolve administrative procedures and responsibilities.
  - .1 Contract Administrator, Contractor and field inspectors will be in attendance.
- .2 Incorporate mutually agreed variations to the Contract Documents into agreement, prior to signing.
- .3 Agenda to include:
  - .1 Appointment of official representative of participants in the Work.
  - .2 Schedule of Work, progress scheduling.
  - .3 Health and safety in accordance with Section 01 35 29.06- Health and Safety procedures.
  - .4 Environmental Protection in accordance with Section 01 35 43- Environmental Procedures.
  - .5 Installation conditions.
  - .6 Review installation instructions and warranty requirements.
  - .7 Co-ordination work with subtrades.
  - .8 Schedule the submission of shop drawings, samples, colour chips accordance with Section 013 3 00- Submittal Procedures.
  - .9 Requirements for temporary facilities, site sign and utilities.
  - .10 Delivery schedule of specified equipment.
  - .11 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, administrative requirements.
  - .12 Owner provided products.
  - .13 Record drawings in accordance with Section 01 33 00- Submittal Procedures.
  - .14 Progress claims, administrative procedures and hold backs.

- .15 Appointment of inspection and testing agencies or firms.
- .16 Insurances and transcript of policies.

### **1.3 PROGRESS MEETINGS**

- .1 The Contract Administrator will schedule regular progress meetings at site, conducted bi-weekly, or at agreed upon schedule, to review the Work progress, progress schedule, Shop Drawing and Sample submissions schedule, Application for Payment, contract modifications, and other matters needing discussion and resolution. Contract Administrator will record and circulate meeting notes.
- .2 Contractor and Contract Administrator are to be in attendance.
- .3 Agenda may include the following:
  - .1 Review, approval of minutes of previous meeting.
  - .2 Review of Work progress since previous meeting.
  - .3 Field observations, problems, conflicts.
  - .4 Problems which impede construction schedule.
  - .5 Review of off-site fabrication delivery schedules.
  - .6 Corrective measures and procedures to regain projected schedule.
  - .7 Revisions to the construction schedule.
  - .8 Revisions of the Health and Safety Plan.
  - .9 Progress schedule during the succeeding work period.
  - .10 Review submittal schedules; expedite as required.
  - .11 Maintenance of quality standards.
  - .12 Review proposed changes for affect on the construction schedule and on completion date.
  - .13 Other business as necessary or recommended by the Contract Administrator.

### **1.4 OTHER MEETINGS**

- .1 In accordance with Contract Documents and as may be required by Owner and Contract Administrator.
- .2 Brief meetings attended by the Contractor's key personnel, the Contract Administrator and as required, the Owner's representative.

## **Part 2**

### **Part 3 Products**

#### **3.1 NOT USED**

- .1 Not Used.



**Part 4            Execution**

**4.1                NOT USED**

.1            Not Used.

**END OF SECTION**

**Part 1            General**

**1.1                ADMINISTRATIVE**

- .1        Submit to the Contract Administrator all submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of the Contract Time, and no claim for extension by reason of such default will be allowed.
- .2        Do not proceed with Work affected by submittals until review is complete.
- .3        Present shop drawings, product data, and samples in SI Metric units.
- .4        Where items or information is not produced in SI Metric unit converted values are acceptable.
- .5        Review submittals prior to submission to the Contract Administrator. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with the requirements of Work and the Contract Documents. Submittals not stamped, signed, dated or identified as the to specific project will be returned without being examined and considered rejected.
- .6        Notify the Contract Administrator, in writing at the time of submission, identifying deviations from the requirements of Contract Documents, stating the reasons for such deviations.
- .7        Verify that field measurements and affected adjacent Work are co-ordinated.
- .8        Contractor's responsibility for errors and omissions in submission is not relieved by the Contract Administrator's review of submittals.
- .9        Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by the Contract Administrator's review.
- .10      Keep one reviewed copy of each submission on site.

**1.2                SHOP DRAWINGS AND PRODUCT DATA**

- .1        The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.
- .2        Submit drawings stamped and signed by professional engineer registered or licensed in Ontario, Canada.
- .3        Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.
- .4        Allow Contract Administrator to review each submission.

- .5 Adjustments made on shop drawings by the Contract Administrator are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to the Contract Administrator prior to proceeding with Work.
- .6 Make changes in shop drawings as the Contract Administrator may require, consistent with Contract Documents. When resubmitting, notify the Contract Administrator in writing of revisions other than those requested.
- .7 Accompany submissions with transmittal letter, containing:
  - .1 Date.
  - .2 Project title and number.
  - .3 Contractor's name and address.
  - .4 Identification and quantity of each shop drawing, product data and sample.
  - .5 Other pertinent data.
- .8 Submissions include:
  - .1 Date and revision dates.
  - .2 Project title and number.
  - .3 Name and address of:
    - .1 Contractor/Subcontractor.
    - .2 Supplier.
    - .3 Manufacturer.
  - .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
  - .5 Details of appropriate portions of Work as applicable, including:
    - .1 Fabrication.
    - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
    - .3 Setting or erection details.
    - .4 Capacities.
    - .5 Performance characteristics.
    - .6 Standards.
    - .7 Relationship to adjacent work.
- .9 Submit an electronic copy (pdf) of shop drawings to the Contract Administrator for review.
  - .1 Reproductions of structural drawings will not be accepted as Shop Drawings.
  - .2 Review of drawings shall be for the purpose of ascertaining conformance with the general design concept. This review does not imply approval of detail design or quantities in shop drawings and does not relieve the contractor of responsibility for errors and omissions in shop drawings or for making the work accurate and in compliance with the contract documents and drawings.
  - .3 Do not fabricate materials based on rejected Shop Drawings or prior to Shop Drawing review by the Contract Administrator.

- .4 Allow 5 working days for review of the Shop Drawings.
- .10 After the Contract Administrator's review, distribute copies to all parties involved or affected by the scope of work.
- .11 Submit electronic copies of shop drawings for each requirement requested in the Contract Documents.
- .12 Submit electronic copies of product data sheets or brochures for requirements requested in the Contract Documents and as requested by the Contract Administrator, where shop drawings will not be prepared due to standardized manufacture of the product.
- .13 Submit electronic copies of test reports for requirements requested in the Contract Documents and as requested by the Contract Administrator.
  - .1 Report must be signed by an authorized official of the testing laboratory, assuring the material, product or system provided has been tested in accordance with the specified requirements for that material, product or system.
- .14 Submit electronic copies of certificates for requirements requested in the Contract Documents and as requested by the Contract Administrator.
  - .1 Statements must be printed on the manufacturer's letterhead and signed by responsible officials of the product, system or material manufacturer attesting that the product, system or material meets or exceeds the specification requirements.
  - .2 Certificates must be dated after award of the project contract, complete with the project name.
- .15 Submit electronic copies of the manufacturers instructions in accordance with the Contract Documents and as requested by the Contract Administrator.
  - .1 Pre-print material describing installation of the product, system or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.
- .16 Submit electronic copies of the Manufacturer's Field Reports for requirements requested in the Contract Documents and as requested by the Contract Administrator.
- .17 Documentation of the testing and verification actions taken by the manufacturer's representative to confirm compliance with the manufacturer's standards or instructions.
- .18 Submit electronic copies of Operation and Maintenance Data for requirements requested in the Contract Documents and as requested by the Contract Administrator.
- .19 Delete information not applicable to the project.
- .20 Supplement standard information to provide details applicable to the project.
- .21 If upon review by the Contract Administrator, no errors or omissions are discovered or if only minor corrections are made, copies will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, the noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.

### **1.3 CERTIFICATES AND TRANSCRIPTS**

- .1 Immediately after award of the Contract, submit Workers' Compensation Board status.

- .2 Submit a transcription of insurance immediately after award of the Contract.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not Used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not Used.

**END OF SECTION**

**Part 1 General**

**1.1 REFERENCE STANDARDS**

- .1 Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations
- .2 Province of Ontario:
  - .1 Occupational Health and Safety Act and Regulations for Construction Projects, R.S.O. 1990, c.0.1, as amended and O. Reg. 213/91 as amended.

**1.2 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00- Submittal Procedures.
- .2 Submit a site-specific Health and Safety Plan Within 7 days after date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must include:
  - .1 Results of site-specific safety hazard assessment.
  - .2 Results of safety and health risk or hazard analysis for site tasks and operation.
- .3 Submit copies of reports or directions issued by Federal, Provincial health and safety inspectors.
- .4 Submit copies of incident and accident reports.
- .5 Submit WHMIS MSDS- Material Safety Data Sheets.
- .6 The Contract Administrator will review the Contractor's site-specific Health and Safety Plan and provide comments to the Contractor prior to commencing work.
- .7 The Contract Administrator's review of the Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.
- .8 On-site Contingency and Emergency Response Plan: address standard operating procedures to be implemented during emergency situations.
  - .1 The Contractor should have sufficient material on site to allow emergency vehicles to cross the bridge within 15 minutes of being notified of an emergency.

**1.3 FILING OF NOTICE**

- .1 File a Notice of Project with the Provincial authorities prior to beginning the Work.

**1.4 SAFETY ASSESSMENT**

- .1 Perform a site-specific safety hazard assessment related to the project.

**1.5 MEETINGS**

- .1 Meetings will be scheduled and administered in accordance with Section 03 31 19- Project Meetings.
  - .1 Discuss Health and Safety requirements during the Preconstruction Meeting.
  - .2 Discuss updates to the Health and Safety plan during Progress Meetings.

## **1.6 REGULATORY REQUIREMENTS**

- .1 Do Work in accordance with the Occupational Health and Safety Act and Regulations for Construction Projects, R.S.O. 1990, c.0.1, as amended and O. Reg. 213/91 as amended.

## **1.7 PROJECT/SITE CONDITIONS**

- .1 Work at site will involve contact with:
  - .1 Preservative treated lumber.
  - .2 Compression seal products.
  - .3 Machinery and equipment.
  - .4 Working near/above water.
  - .5 Other on-site hazards.

## **1.8 GENERAL REQUIREMENTS**

- .1 Develop written site-specific Health and Safety Plan based on the hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address the project specifications and scope of work.
- .2 The Contract Administrator may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns.

## **1.9 RESPONSIBILITY**

- .1 Be responsible for the health and safety of persons on site, safety of property on site and for the protection of persons adjacent to the site and the environment to extent that they may be affected by the conduct of Work.
- .2 The Contractor will be responsible and assume the role Constructor as described in the Ontario Occupational Health and Safety Act and Regulations for Construction Projects.
- .3 Comply with and enforce compliance by employees with the health and safety requirements of the Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

## **1.10 COMPLIANCE REQUIREMENTS**

- .1 Comply with Ontario Occupational Health and Safety Act, R.S.O. 1990, c. 0.1 and Ontario Regulations for Construction Projects, O. Reg. 213/91.
- .2 Comply with Canada Labour Code, Canada Occupational Safety and Health Regulations.

## **1.11 UNFORSEEN HAZARDS**

- .1 When unforeseen or peculiar safety-related factors, hazards, or conditions occur during the performance of Work, follow the procedures in place for Employee's Right to Refuse Work in accordance with the acts and regulations of the applicable Province having jurisdiction and advise the Contract Administrator in writing of such hazards.

**1.12 POSTING OF DOCUMENTS**

- .1 Ensure applicable items, articles, notices and orders are posted in conspicuous location(s) on site in accordance with the acts and regulations of the Province having jurisdiction, and in consultation with the Contract Administrator.

**1.13 CORRECTION OF NON-COMPLIANCE**

- .1 Immediately address health and safety non-compliance issues identified by authorities having jurisdiction or by the Contract Administrator.
- .2 Provide the Contract Administrator with written report of action taken to correct non-compliance of health and safety issues identified.
- .3 The Contract Administrator may stop the Work if a non-compliance of health and safety regulation is not corrected.

**1.14 WORK STOPPAGE**

- .1 Give precedence to safety and health of the public and site personnel and protection of the environment over cost and schedule considerations for Work.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not used.

**END OF SECTION**



**Part 1            General**

**1.1                DEFINITIONS**

- .1    Environmental Pollution and Damage: presence of chemical, physical, biological elements or agents which adversely affect human health and welfare; unfavourably alter ecological balances of importance to human life; affect other species of importance to humans; or degrade environment aesthetically, culturally and/or historically.
- .2    Environmental Protection: prevention/control of pollution and habitat or environment disruption during construction.

**1.2                GENERAL**

- .1    All work carried out shall comply with the applicable environmental laws, codes, ordinances and regulations.
- .2    To minimize site impact:
  - .1    Construction activities and staging will be confined to the existing driveway.
  - .2    Construction access will occur only on access routes that have been negotiated and agreed to by tenants.
- .3    Tenants will be provided with at least 48 hours notice of any activities to occur on the lands that they lease.

**1.3                CONSTRUCTION SCHEDULING**

- .1    The Contractors will coordinate the schedule for construction activities with the Parks Canada Project Coordinator. The Project Coordinator will inform the Parks Canada Environmental Surveillance Officer (ESO) of schedule.
- .2    Schedule work to avoid wet, windy and rainy periods that may increase erosion and sedimentation.

**1.4                ACTION AND INFORMATIONAL SUBMITTALS**

- .1    Submit in accordance with Section 01 33 00- Submittal Procedures.
- .2    Product Data:
  - .1    Submit manufacturer's instructions, printed product literature and data sheets.
  - .2    Submit copies of WHMIS MSDS.
- .3    Before commencing construction activities or delivery of materials to site, submit the Environmental Protection Plan for review and approval by the Contract Administrator.
- .4    The Environmental Protection Plan must include a comprehensive overview of known or any potential environmental issues to be addressed during construction.
- .5    Address topics at level of detail commensurate with environmental issue and required construction tasks.
- .6    Include in the Environmental Protection Plan:

- .1 Names of persons responsible for ensuring adherence to the Environmental Protection Plan.
- .2 Names and qualifications of persons responsible for manifesting hazardous waste that is to be removed from site in accordance with Section 02 81 01- Hazardous Materials.
- .3 A description of environmental protection personnel training program.
- .4 Erosion and sediment control plan identifying the type and location of erosion and sediment controls to be provided including monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control plan, Federal, Provincial, and Municipal laws and regulations
  - .1 To be submitted to and approved by the PCA at least 5 business days prior to mobilizing on site.
- .5 Drawings indicating locations of material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials including methods to control runoff and to contain materials on site.
- .6 Work area plan showing proposed activity in each portion of area and identifying areas of limited use or non-use.
  - .1 Plan to include measures for marking limits of use areas and methods for protection of features to be preserved within authorized work areas.
- .7 Spill Control Plan to include procedures, instructions, and reports to be used in event of unforeseen spill of regulated substance.
- .8 Non-Hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris.
- .9 Contaminant Prevention Plan identifying potentially hazardous substances to be used on job site; intended actions to prevent introduction of such materials into air, water, or ground; and detailing provisions for compliance with Federal, Provincial, and Municipal laws and regulations for storage and handling of these materials.

## **1.5 FIRES**

- .1 Fires and burning rubbish on site is not permitted.

## **1.6 DRAINAGE**

- .1 Develop and submit erosion and Sediment Control Plan (ESC) identifying type and location of erosion and sediment controls provided. Plan to include monitoring and reporting requirements to assure that control measures are in compliance with the erosion and sediment control plan, Federal, Provincial, and Municipal laws and regulations.
- .2 Control disposal and runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.

## **1.7 PLANT AND VEGETATION PROTECTION**

- .1 Protect trees and shrubs on the site which are not specifically designated for removal. Isolate trees from the construction area with protective snow fencing erected along the tree line.

- .2 Minimize damage to milkweed and surrounding vegetation where feasible. Prior to beginning, qualified staff will sweep the work area. If it is not possible to avoid damaging milkweed, the individual plants will be checked for the presence of monarch. Eggs or caterpillars will be collected, and head started by Parks Canada Resource Conservation staff.
- .3 Avoid unnecessary traffic, dumping and storage of materials over root zones.

#### **1.8 WORK ADJACENT TO WATERWAYS**

- .1 Construction equipment and machinery should be operated on land above the high-water mark in a manner that minimized disturbance to the banks and bed of the waterbody.
- .2 Plan activities near water such that materials such as paint, solvents, degreasers, and other chemicals do not enter the watercourse.
- .3 Waterways to be kept free of waste material and debris.
- .4 Design and construct temporary crossings to minimize erosion to waterways.
- .5 Do not skid construction materials across waterways.

#### **1.9 POLLUTION CONTROL**

- .1 Maintain temporary erosion and pollution control features installed under this Contract.
- .2 Control emissions from equipment and machinery in accordance with local authorities' emission requirements.
- .3 Prevent extraneous materials from contaminating air and waterways beyond the application area.
- .4 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.

#### **1.10 HISTORICAL/ARCHAEOLOGICAL CONTROL**

- .1 In the event that soil excavation is required, additional archeological work will be required, Contact Parks Canada Archaeology to arrange an archaeological assessment.
- .2 There remains the possibility of encountering archaeological resources of indigenous or Euro-Canadian occupation within the area. If cultural features (E.G, structural remains and/or artifact concentrations) are encountered, excavation should stop in this area, photographs should be taken, and the Parks Canada project manager should be informed, the project manager should then contact Parks Canada's Terrestrial Archaeology section for advice. An assessment of significance will determine further actions.

#### **1.11 EROSION AND SEDIMENT CONTROL**

- .1 The finalized erosion and sediment control plan must be reviewed and approved by Parks Canada staff.
- .2 Although excavation is not required for this project, any potential areas where ground disturbance may occur should be contained by adequate erosion and sediment control.

**1.12 NOTIFICATION**

- .1 The Contract Administrator will notify the Contractor in writing of observed noncompliance with the Federal, Provincial and Municipal environmental laws, regulations, permits, and other elements of the Contractor's Environmental Protection plan.
- .2 Contractor: after receipt of such notice, will inform the Contract Administrator of proposed corrective action(s) and take such action(s) for approval by the Contract Administrator.
  - .1 Take action(s) only after receipt of written approval by the Contract Administrator.
- .3 The Contract Administrator will issue Stop Order of Work until satisfactory corrective action has been taken.
- .4 No time extensions will be granted, or equitable adjustments be allowed to the Contractor for such suspensions.

**1.13 SPECIES OF SIGNIFICANCE AND CULTURAL RESOURCES**

- .1 Should species of significance or cultural resources be halt work immediately and notify the Contract Administrator.
- .2 Should species of significance or cultural resources be affected during the project, Parks Canada will consult with first nations to ensure that there will not be an adverse impact on their rights.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not Used.

**Part 3 Execution**

**3.1 CLEANING**

- .1 Progress Cleaning: clean in accordance with Section 01 74 11- Cleaning.
- .2 Leave Work area clean at end of each day.
- .3 Ensure public waterways remain free of waste and volatile materials.
- .4 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11- Cleaning.

**END OF SECTION**

**Part 1            General**

**1.1                INSPECTION**

- .1     Allow the Contract Administrator access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.
- .2     Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by the Contract Administrator instructions, or law of Place of Work.
- .3     If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.
- .4     The Contract Administrator will order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction.

**1.2                INDEPENDENT INSPECTION AGENCIES**

- .1     Independent Inspection/Testing Agencies may be engaged by the Contract Administrator for purpose of inspecting and/or testing portions of Work. Cost of such services will be borne by the Owner.
- .2     Provide equipment required for executing inspection and testing by appointed agencies.
- .3     Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.
- .4     If defects are revealed during inspection and/or testing, the appointed agency will request additional inspection and/or testing to ascertain full degree of the defects and irregularities. Correct defects and irregularities as advised by the Contract Administrator at no cost to the Contract Administrator or Owner costs for retesting and reinspection.

**1.3                ACCESS TO WORK**

- .1     Allow inspection/testing agencies access to Work off site at manufacturing and fabrication plants.
- .2     Co-operate to provide reasonable facilities for such access.

**1.4                PROCEDURES**

- .1     Notify appropriate agency and the Contract Administrator in advance of requirement for tests, in order that attendance arrangements can be made.
- .2     Submit samples and/or materials required for testing, as specifically requested in the specifications. Submit with reasonable promptness and in orderly sequence to not cause delays in Work.
- .3     Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

**1.5 REJECTED WORK**

- .1 Remove defective Work, whether the result of poor workmanship, use of defective products or damage materials and whether incorporated in Work or not, which has been rejected by the Contract Administrator as failing to conform to Contract Documents. Replace or re-execute the Work in accordance with Contract Documents.
- .2 Make good other Contractor's work damaged by removals or replacements promptly.
- .3 If in opinion of the Contract Administrator it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, the Owner will deduct from Contract Price the difference in value between the Work performed and that called for by Contract Documents, amount of which will be determined by the Contract Administrator.

**1.6 REPORTS**

- .1 Submit copies of inspection and test reports to the Contract Administrator.
- .2 Provide copies of the work being inspected or tested to the Contractor/Subcontractor and the manufacturer or fabricator of the material being inspected or tested.

**1.7 TESTS**

- .1 Furnish test results as requested.
- .2 Cost of tests beyond those called for in Contract Documents or beyond those required by law of Place of Work will be appraised by the Contract Administrator and may be authorized as recoverable.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not Used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not Used.

**END OF SECTION**

**Part 1            General**

**1.1                REFERENCE STANDARDS**

- .1    Ministry of Transportation, Ontario (MTO)
  - .1        Ontario Traffic Manual Book 7: Temporary Conditions.

**1.2                PROTECTION OF PUBLIC TRAFFIC**

- .1    Comply with requirements of Acts, Regulations and By-Laws in force for regulation of traffic or use of roadways upon or over which it is necessary to carry out Work or haul materials or equipment.
- .2    When working on travelled way:
  - .1        Place equipment in position to minimize interference and hazard to travelling public.
  - .2        Keep equipment units as close together as working conditions permit and preferably on same side of travelled way.
  - .3        Do not leave equipment on the travelled way overnight.
- .3    Provide and maintain road access and egress to property fronting along Work under Contract and in other areas as indicated, except where other means of road access exist that meet approval of the Contract Administrator.

**1.3                INFORMATIONAL AND WARNING DEVICES**

- .1    Provide and maintain signs, and other devices required to indicate construction activities or other temporary and unusual conditions resulting from Project Work which requires road user response.
- .2    Supply and erect signs, delineators, barricades and miscellaneous warning devices to Ontario Traffic Manual, Book 7: Temporary Conditions.
- .3    Place signs and other devices in locations recommended in Ontario Traffic Manual, Book 7: Temporary Conditions.
- .4    Meet with the Contract Administrator prior to commencement of Work to prepare list of signs and other devices required for project. If the situation on site changes, revise the list to the approval of the Contract Administrator.
- .5    Continually maintain traffic control devices in use:
  - .1        Check signs daily for legibility, damage, suitability and location. Clean, repair or replace to ensure clarity and reflectance.
  - .2        Remove or cover signs which do not apply to the conditions existing from day to day.

**1.4                CONTROL OF PUBLIC TRAFFIC**

- .1    Provide competent flag personnel, trained in accordance with, and properly equipped to Ontario Traffic Manual, Book 7: Temporary Conditions for situations as follows:

- .1 When public traffic is required to pass working vehicles or equipment that block all or part of travelled roadway.
- .2 When it is necessary to institute one-way traffic system through construction area or other blockage where traffic volumes are heavy, approach speeds are high and traffic signal system is not in use.
- .3 When workmen or equipment are employed on travelled way over brow of hills, around sharp curves or at other locations where oncoming traffic would not otherwise have adequate warning.
- .4 Where temporary protection is required while other traffic control devices are being erected or taken down.
- .5 For emergency protection when other traffic control devices are not readily available.
- .6 In situations where complete protection for workers, working equipment and public traffic is not provided by other traffic control devices.

**1.5 OPERATIONAL REQUIREMENTS**

- .1 The contractor shall maintain access for all trades, subcontractors, manufacturers and Tenants to the site where applicable.
- .2 The contractor shall always maintain pedestrian access to tenant properties.
- .3 The contractor shall stage the work such that the bridge will be open to vehicular traffic when the contractor is not on site. Traffic barrels shall be provided to delineate the edge of the bridge.
- .4 The contractor shall have a plan and have sufficient materials on site to allow emergency vehicles to cross the bridge within 15 minutes of being notified.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not Used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not Used.

**END OF SECTION**



**Part 1            General**

**1.1                PROJECT CLEANLINESS**

- .1     Maintain Work in tidy condition, free from accumulation of waste products and debris, caused by Owner or other Contractors and Subcontractors.
- .2     Remove trash and debris from the site and leave the premises in clean condition daily.
- .3     Remove waste materials from site at regularly scheduled times at designated dumping areas or dispose of as directed by the Contract Administrator. Do not burn waste materials on site, unless approved by the Contract Administrator.
- .4     Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .5     Provide on-site dump containers.
- .6     Dispose of waste materials and debris off site.
- .7     Store volatile waste in covered metal containers and remove from premises at the request of the Contract Administrator.
- .8     Use only cleaning materials as recommended by the manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- .9     Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

**1.2                FINAL CLEANING**

- .1     When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
- .2     Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.
- .3     Prior to final review remove surplus products, tools, construction machinery and equipment.
- .4     Remove waste products and debris including that caused by Owner or other Contractors.
- .5     Remove waste materials from site at regularly scheduled times or dispose of as directed by the Contract Administrator. Do not burn waste materials on site, unless approved by the Contract Administrator.
- .6     Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .7     Inspect finishes, fitments and equipment and ensure specified workmanship and operation.
- .8     Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds.
- .9     Remove dirt and other disfiguration from exterior surfaces.
- .10    Sweep and wash clean paved areas.

- .11 Remove debris and surplus materials from crawl areas and other accessible concealed spaces.
- .12 Remove snow and ice from access to site.

**1.3 WASTE MANAGEMENT AND DISPOSAL**

- .1 Separate waste materials in accordance with Section 02 81 01- Hazardous Materials.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not Used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not Used.

**END OF SECTION**

**Part 1 General**

**1.1 DESCRIPTION**

- .1 This section specifies the administrative procedures preceding preliminary and final inspections of the Work for issuance of Certificate of Substantial Performance of the Work.

**1.2 INSPECTION AND DECLARATION OF SUBSTANTIAL PERFORMANCE**

- .1 Contractor's Inspection: The Contractor and all Subcontractors shall conduct an inspection of the Work to identify deficiencies, defects, and repairs as required to conform to the Contract Documents.
- .2 The Contractor shall notify the Contract Administrator in writing of satisfactory completion of the Contractor's inspection, that corrections have been made, and request the Contract Administrator's inspection of the Work.
- .3 The Contract Administrator's Inspection: The Contract Administrator and the Contractor will perform an inspection of the Work to identify defects or deficiencies and the Contractor will correct the Work accordingly.
- .4 At Completion: The Contractor shall submit a written certificate that the following has been performed:
  - .1 Work has been completed and inspected for compliance with the Contract Documents.
  - .2 All defects have been corrected and deficiencies have been corrected.
  - .3 All required documentation has been submitted in accordance with Section- 01 33 00- Submittal Procedures.
  - .4 Work is complete and ready for Final inspection.
- .5 Final Inspection: When the items noted above are completed, the Contractor shall request a final inspection of the Works by the Contract Administrator and the Owner.
  - .1 Complete the outstanding work or deficiencies arising out of the final inspection that are deemed to affect issuance of the Certificate of Substantial Performance of the Work.
  - .2 Agree to a list of outstanding items and deficiencies that do not affect Substantial Performance of the Work with the Contract Administrator.
  - .3 Apply for Substantial Performance of the Work.

**1.3 PUBLISH**

- .1 The Contractor shall publish the Certificate of Substantial Performance in the Daily Commercial News when issued by the Contract Administrator. The Contractor shall submit a copy of the publication of Certificate of Substantial Performance to the Contract Administrator with the application for release of statutory holdback funds.
- .2 Note that 60-day lien period commences on the date the certificate is published.

#### **1.4 SUBMISSIONS**

- .1 The Contractor shall submit the following in accordance with Section 01 33 23-Submittals:
  - .1 Submit one set of As-Built Record Drawings to Contract Administrator and owner upon completion of Work and prior to payment.
  - .2 Submit all brochures, installation and assembly manuals, catalogues, shop drawings, and other documents to the owner upon completion of construction and prior to payment.
- .2 Prepare closeout submissions and data by personnel experienced in construction and submit copies for the Contract Administrator's review.
  - .1 One (1) copy will be returned with comments and one (1) copy will be retained to assist the Contract Administrator and will be returned after delivery of the final copies.
- .3 Revise the content of documents as required prior to the Final Submittal.
- .4 If requested, furnish evidence as to type, source and quality of products provided.

#### **1.5 AS -BUILT DOCUMENTS AND SAMPLES**

- .1 Maintain at site for Contract Administrator one record copy of:
  - .1 Contract Drawings.
  - .2 Specifications.
  - .3 Addenda.
  - .4 Change Orders and other modifications to Contract.
  - .5 Reviewed shop drawings, product data, and samples.
  - .6 Field test records.
  - .7 Inspection certificates.
  - .8 Manufacturer's certificates.
- .2 Store record documents and samples apart from documents used for construction.
  - .1 Provide files, racks, and secure storage.
- .3 Maintain record documents in clean, dry and legible condition.
  - .1 Do not use record documents for construction purposes.
- .4 Keep record documents and samples available for inspection by Contract Administrator.

#### **Part 2 Products**

##### **2.1 NOT USED**

- .1 Not Used.

**Part 3            Execution**

**3.1                NOT USED**

.1            Not Used.

**END OF SECTION**

**Part 1            General**

**1.1                RELATED REQUIREMENTS**

- .1            Section 02 81 01 Hazardous Materials

**1.2                MEASUREMENT AND PAYMENT**

- .1            Measurement Procedures.
  - .1            Removals are measured as a lump sum item that includes, but is not limited to the following items:
    - .1            Nail-laminated timber deck.
    - .2            Steel beam guiderail and handrail, including wood posts.
    - .3            Expansion joint compression seals
    - .4            Deck side expansion joint armoring angles.
    - .5            Steel channels under the bridge deck.

**1.3                REFERENCE STANDARDS**

- .1            Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1            Material Safety Data Sheets (MSDS).
- .2            Transport Canada (TC)
  - .1            Transportation of Dangerous Goods Act, 1992 (TDGA), c. 34.

**1.4                DEFINITIONS**

- .1            Demolition: rapid destruction following removal of hazardous materials.
- .2            Hazardous Materials: dangerous substances, dangerous goods, hazardous commodities and hazardous products, may include but not limited to: asbestos PCB's, CFC's, HCFC's poisons, corrosive agents, flammable substances, ammunition, explosives, radioactive substances, or other material that can endanger human health or well being or environment if handled improperly.

**1.5                ACTION AND INFORMATIONAL SUBMITTALS**

- .1            Submit in accordance with Section 01 33 00 Submittal Procedures.
- .2            Shop Drawings:
  - .1            Submit drawings stamped and signed by professional engineer licensed in Ontario, Canada.
  - .2            Submit for approval drawings, diagrams or details showing sequence of demolition work and supporting structures, where required by authorities having jurisdiction.
- .3            Hazardous Materials:
  - .1            Provide description of Hazardous Materials and Notification of Filing with proper authorities prior to beginning of Work as required.

- .4 Certificates:
  - .1 Submit certified receipts from authorized disposal sites for material removed from site as scheduled or at the request of the Contract Administrator.

## **1.6 QUALITY ASSURANCE**

- .1 Ensure all Work is performed in compliance with the contract documents and the applicable Provincial laws/regulations of authorities having jurisdiction to the satisfaction of the Contract Administrator.

## **1.7 DELIVERY, STORAGE AND HANDLING**

- .1 Store and manage hazardous materials in accordance with Section 02 81 01 Hazardous Materials.
- .2 Store and handle materials, tools and equipment in accordance with the manufacturer's written instructions and with the best accepted practices.
- .3 Storage and Protection:
  - .1 Protect existing items designated to remain and items designated for salvage. In event of damage to such items, immediately replace or make repairs to approval of Contract Administrator and at no cost to Owner.
  - .2 Remove and store materials to be salvaged, in manner to prevent damage.
  - .3 Store and protect in accordance with requirements for maximum preservation of material.
  - .4 Handle salvaged materials as new materials.

## **1.8 SITE CONDITIONS**

- .1 Site Environmental Requirements:
  - .1 Perform Work in accordance with Section 01 35 43 Environmental Procedures.
  - .2 Ensure that selective demolition work does not adversely affect adjacent watercourses, groundwater and wildlife, or contribute to excess air and noise pollution.
  - .3 Do not dispose of waste or volatile materials including but not limited to, mineral spirits, oil, petroleum-based lubricants, or toxic cleaning solutions into any watercourses, storm or sanitary sewers.
    - .1 Ensure proper disposal procedures are maintained throughout the project.
  - .4 Do not pump water containing suspended materials into watercourses, storm or sanitary sewers or onto adjacent properties.
  - .5 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authorities and as directed by the Contract Administrator.
- .2 Any damage during construction to the existing structure (not designated for repair), utilities, and adjacent properties shall be repaired by the Contractor to their original condition, to the satisfaction of the Contract Administrator.
  - .1 Protect trees, plants and foliage on site and adjacent properties where indicated.
- .3 Existing Conditions.

- .1 Remove contaminated or hazardous materials, as defined by authorities having jurisdiction, from site, prior to start of demolition Work, and dispose of at designated disposal facilities in safe manner in accordance with TDGA and other applicable regulatory requirements and Section 02 81 01- Hazardous Materials.
- .2 List of hazardous materials:
  - .1 Existing wood deck is assumed to be pressure treated lumber.

## **Part 2 Products**

### **2.1 EQUIPMENT**

- .1 Leave machinery running only while in use, except where extreme temperatures prohibit shutting machinery down.

## **Part 3 Execution**

### **3.1 PREPARATION**

- .1 Inspect site with the Contract Administrator to verify the extent and location of items designated for removal, disposal, alternative disposal, and items to remain.
- .2 Locate and protect utilities. Preserve active utilities traversing the site in operating condition.
  - .1 The contractor is fully responsible for protecting utilities
- .3 Notify and obtain approval of utility companies before starting the demolition work.

### **3.2 REMOVAL OF HAZARDOUS WASTES**

- .1 Remove contaminated or dangerous materials defined by authorities having jurisdiction, relating to environmental protection, from site and dispose of in safe manner to minimize danger at site or during disposal.

### **3.3 REMOVAL OPERATIONS**

- .1 Remove items as indicated.
- .2 Do not disturb items designated to remain in place.
- .3 Protect underlying and adjacent granular materials.
- .4 Obtain written approval of Contract Administrator prior to removal of trees.
- .5 Dispose of materials not designated for salvage or reuse on site at authorized facilities.

### **3.4 REMOVAL FROM SITE**

- .1 Remove material as directed by the Contract Administrator, when it interferes with operations of project.
- .2 Remove stockpiles of like materials by alternate disposal option once collection of materials is complete.



- .3 Transport material designated for alternate disposal using approved receiving organizations in accordance with applicable laws and regulations.
- .4 Dispose of materials not designated for alternate disposal in accordance with applicable regulations.

**3.5 RESTORATION**

- .1 Restore areas and existing works outside the areas of demolition to conditions that existed prior to beginning of Work or match condition of adjacent, undisturbed areas.
- .2 Repair damage to adjacent materials or property caused by selective site demolition.

**3.6 CLEANING**

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 Cleaning.
  - .1 Leave Work area clean at end of each day.
  - .2 Remove debris, trim surfaces and leave work site clean, upon completion of Work
  - .3 Use cleaning solutions and procedures which are not harmful to health, are not injurious to plants, and do not endanger wildlife, adjacent water courses or ground water.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11- Cleaning.

**3.7 PROTECTION**

- .1 Repair damage to adjacent materials or property caused by selective site demolition.

**END OF SECTION**

**Part 1            General**

**1.1                RELATED REQUIREMENTS**

- .1        Section 02 41 13 Selective Site Demolition
- .2        Section 07 91 00 Deck Joint Assemblies
- .3        Section 06 05 73 Wood Treatment

**1.2                REFERENCE STANDARDS**

- .1        Canadian Environmental Protection Act,1999 (CEPA 1999)
- .2        Department of Justice Canada (Jus)
  - .1        Transportation of Dangerous Goods Act, 1992 (TDG Act), (c. 34).
  - .2        Transportation of Dangerous Goods Regulations (T-19.01-SOR/2001-286).
- .3        Health Canada / Workplace Hazardous Materials Information System (WHMIS)
  - .1        Material Safety Data Sheets (MSDS).
- .4        National Research Council Canada (NRC)
  - .1        National Fire Code of Canada 2015 (NFC).

**1.3                DEFINITIONS**

- .1        Dangerous Goods: product, substance, or organism specifically listed or meets hazard criteria established in Transportation of Dangerous Goods Regulations.
- .2        Hazardous Material: product, substance, or organism used for its original purpose; and is either dangerous goods or material that will cause adverse impact to environment or adversely affect health of persons, animals, or plant life when released into the environment.
- .3        Hazardous Waste: hazardous material no longer used for its original purpose and that is intended for recycling, treatment or disposal.

**1.4                ACTION AND INFORMATIONAL SUBMITTALS**

- .1        Submit in accordance with Section 01 33 00 Submittal Procedures.
- .2        Product Data:
  - .1        Submit manufacturer's instructions, printed product literature and data sheets for hazardous materials and include product characteristics, performance criteria, physical size, finish and limitations.
  - .2        Submit copies of WHMIS MSDS to the Contract Administrator for each hazardous material required, prior to bringing hazardous material on site.

## **1.5 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with manufacturer's written instructions in accordance with the applicable federal and provincial laws, regulations, codes and guidelines.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Transport hazardous materials and wastes in accordance with Transportation of Dangerous Goods Act, Transportation of Dangerous Goods Regulations, and applicable provincial regulations.
- .4 Storage and Handling Requirements:
  - .1 Co-ordinate storage of hazardous materials with the Contract Administrator and abide by internal requirements for labelling and storage of materials and wastes.
  - .2 Store and handle hazardous materials and wastes in accordance with applicable federal and provincial laws, regulations, codes, and guidelines.
  - .3 Store and handle flammable and combustible materials in accordance with National Fire Code of Canada (NFC) requirements.
  - .4 Observe smoking regulations, smoking is prohibited in areas where hazardous materials are stored, used, or handled.
  - .5 Storage requirements for quantities of hazardous materials and wastes in excess of 5 kg for solids, and 5 litres for liquids:
    - .1 Store hazardous materials and wastes in closed and sealed containers.
    - .2 Label containers of hazardous materials and wastes in accordance with WHMIS.
    - .3 Store hazardous materials and wastes in containers compatible with that material or waste.
    - .4 Segregate incompatible materials and wastes.
    - .5 Ensure that different hazardous materials or hazardous wastes are stored in separate containers.
    - .6 Store hazardous materials and wastes in secure storage area with controlled access.
    - .7 Maintain clear egress from storage area.
    - .8 Store hazardous materials and wastes in locations that will prevent them from spilling into environment.
    - .9 Have appropriate emergency spill response equipment available near storage area, including personal protective equipment.
    - .10 Maintain inventory of hazardous materials and wastes, including product name, quantity, and date when storage began.
    - .11 When hazardous waste is generated on site:
      - .1 Co-ordinate transportation and disposal with Contract Administrator.
      - .2 Comply with applicable federal, provincial and municipal laws and regulations for generators of hazardous waste.

- .3 Use licensed carrier authorized by provincial authorities to accept subject material.
- .4 Before shipping material obtain written notice from intended hazardous waste treatment or disposal facility it will accept material and it is licensed to accept this material.
- .5 Label containers with legible, visible safety marks as prescribed by federal and provincial regulations.
- .6 Only trained personnel handle, offer for transport, or transport dangerous goods.
- .7 Provide photocopy of shipping documents and waste manifests to Contract Administrator.
- .8 Track receipt of completed manifest from consignee after shipping dangerous goods. Provide photocopy of completed manifest to Contract Administrator.
- .9 Report discharge, emission, or escape of hazardous materials immediately to Contract Administrator and appropriate provincial authority. Take reasonable measures to control release.
- .12 Ensure personnel have been trained in accordance with Workplace Hazardous Materials Information System (WHMIS) requirements.
- .13 Report spills or accidents immediately to the Contract Administrator. Submit a written spill report to the Contract Administrator within 24 hours of incident.

**Part 2 Products**

**2.1 MATERIALS**

- .1 Description:
  - .1 Bring on site only quantities of hazardous material required to perform Work.
  - .2 Maintain MSDS in proximity to where materials are being used. Communicate this location to personnel who may have contact with hazardous materials.

**Part 3 Execution**

**3.1 CLEANING**

- .1 Progress Cleaning in accordance with Section 01 74 11 Cleaning.
  - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 Cleaning.

**END OF SECTION**

**Part 1            General**

**1.1                RELATED REQUIREMENTS**

- .1            Section 06 18 00 Glue-Laminated Construction

**1.2                REFERENCE STANDARDS**

- .1            ASTM International:
  - .1            ASTM A153/A153M Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
  - .2            ASTM A307, Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.
  - .3            ASTM A572/572M, Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel
  - .4            ASTM A500/A500M, Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
- .2            American Society of Mechanical Engineers:
  - .1            ASME B18.2.1-12, Square, Hex, Heavy Hex, and Askew Head Bolts and Hex, Heavy hex, Hex Flange, Lobed Head, and Lag Screws
- .3            Canadian Institute of Steel Construction (CISC):
  - .1            Code of Standard Practice for Structural Steel.
- .4            CSA Group:
  - .1            CSA S6, Canadian Highway Bridge Design Code.
  - .2            CSA G40.20/G40.21, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
  - .3            CSA G164, Hot Dip Galvanizing of Irregularly Shaped Articles.
  - .4            CSA S16, Design of Steel Structures.
  - .5            CSA W59, Welded Steel Construction (Metal Arc Welding).
  - .6            CSA W48, Filler Metals and Allied Materials for Metal Arc Welding.

**1.3                ACTION AND INFORMATIONAL SUBMITTALS**

- .1            Submit in accordance with Section 01 33 00 Submittal Procedures.
- .2            Product Data:
  - .1            Submit manufacturer's instructions, printed product literature and data sheets for sections, plates, lag screws and include product characteristics, performance criteria, physical size, finish and limitations.
  - .2            Submit copies of WHMIS SDS.
- .3            Shop Drawings:
  - .1            Submit drawings stamped and signed by professional engineer registered or licensed in Ontario, Canada.

- .2 Indicate materials, core thicknesses, finishes, connections, joints, method of anchorage, number of anchors, supports, reinforcement, details, and accessories.

#### **1.4 QUALITY ASSURANCE**

- .1 Test Reports: submit certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 Certifications: submit product certificates signed by the manufacturer certifying materials comply with the specified performance characteristics, criteria and physical requirements.

#### **1.5 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with the manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
  - .1 Store materials in dry location and off ground and in accordance with manufacturer's instructions.
  - .2 Replace defective or damaged materials with new.

### **Part 2 Products**

#### **2.1 MATERIALS**

- .1 Steel plates: to CSA G40.20/G40.21 - Grade 300W/350W or ASTM A572 - Grade 42.
- .2 Steel pipe: to ASTM A500/A500M
  - .1 Shop Galvanizing to CSA-G164.
    - .1 All structural Steel shall be hot-dip galvanized unless otherwise noted.
    - .2 Welding materials: to CSA W59.
- .3 Welding electrodes: to CSA W48 Series.
- .4 Galvanized Lag screws: to ASME B.18.2.1, SAE J429 Grade 1.

#### **2.2 FABRICATION**

- .1 Fabricate work square, true, straight and accurate to required size, with joints closely fitted and properly secured.
- .2 Weld materials in accordance with CSA W59.
  - .1 Welding electrodes to CSA W48.
  - .2 Exposed welds should be continuous for the length of each joint.
  - .3 File or grind exposed welds smooth and flush.
- .3 Where possible, fit and shop assemble work, ready for erection to minimize onsite welding.
- .4 Exposed welds should be continuous for the length of each joint.

- .5 File or grind exposed welds smooth and flush.

### **2.3 FINISHES**

- .1 Galvanizing: hot dipped galvanizing with zinc coating 600 g/m<sup>2</sup> to CAN/CSA-G164.

### **2.4 PIPE HAND RAILINGS**

- .1 Steel pipe: to ASTM A500/A500M.
- .2 Steel plates: to CSA G40.20/G40.21 - Grade 300W.
- .3 Hot dipped galvanized steel finish to: CSA- G164 and ASTM A123/A123M.

### **2.5 SPLICE CONNECTION PLATE**

- .1 Steel plates: to CSA G40.20/G40.21 - Grade 350W or ASTM A572 - Grade 42.
- .2 Hot dipped galvanized steel finish to: CSA- G164 and ASTM A123/A123M.

## **Part 3 Execution**

### **3.1 EXAMINATION**

- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts is acceptable for metal fabrications installation in accordance with manufacturer's written instructions.
  - .1 Visually inspect substrate in presence of the Contract Administrator.
  - .2 Inform the Contract Administrator of unacceptable conditions immediately upon discovery.
  - .3 Proceed with installation only after unacceptable conditions have been remedied and after approval to proceed has been received from the Contract Administrator.

### **3.2 ERECTION – GENERAL**

- .1 Do welding work in accordance with CSA W59 unless specified otherwise.
- .2 Erect metalwork square, plumb, straight, and true, accurately fitted, with tight joints and intersections.
- .3 Provide suitable means of anchorages in accordance with the Contract Drawings.
- .4 Exposed fastening devices to match finish and be compatible with material through which they pass.
- .5 Supply components for work in accordance with the Contract Drawings and Project Schedule.
- .6 Touch-up scratched surfaces with zinc rich paint after completion.
  - .1 Paint: use according to product manufacturer's instructions.

### **3.3 PIPE HAND RAILINGS**

- .1 Anchor pipe hand railings to the glued-laminated crash barriers as indicated, in the Contract Drawings using lag screws with pre-drilled holes per CSA O86-14.

**3.4 SPLICE PLATE**

- .1 Install steel splice plate to secure components.

**3.5 CLEANING**

- .1 Progress cleaning and final cleaning in accordance with Section 01 74 11- Cleaning.
  - .1 Leave Work area clean at end of each day.

**3.6 PROTECTION**

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by metal fabrications installation.

**END OF SECTION**



**Part 1            General**

**1.1                RELATED REQUIREMENTS**

- .1        Section 06 15 00 Wood Decking
- .2        Section 06 18 00 Glue-Laminated Construction

**1.2                REFERENCE STANDARDS**

- .1        American Wood-Preservers' Association (AWPA)
  - .1        AWPA M2, Standard for Inspection of Treated Wood Products.
  - .2        AWPA M4, Standard for Care of Preservative-Treated Wood Products.
- .2        CSA Group:
  - .1        CSA S6, Canadian Highway Bridge Design Code.
  - .2        CSA O86, Engineering Design in Wood.
  - .3        CSA O80 Series, Wood Preservation.
- .3        Health Canada/Workplace Hazardous Materials Information System (WHMIS):
  - .1        Material Safety Data Sheets (MSDS).

**1.3                ACTION AND INFORMATIONAL SUBMITTALS**

- .1        Submit certificates and all other submittals in accordance with Section 01 33 00-Submittal Procedures.
- .2        For products treated with preservative by pressure impregnation submit following information certified by authorized signing officer of treatment plant:
  - .1        Information listed in AWPA M2 and revisions specified in CSA O80 Series, Supplementary Requirement to AWPA M2 applicable to specified treatment.
  - .2        Acceptable types of paint, stain, and clear finishes that may be used over treated materials to be finished after treatment.
- .3        Recommended metal connector and fastener materials and corrosion protection.
- .4        Product recommendation for field treatment.

**1.4                CERTIFICATES**

- .1        For products treated with preservative by pressure impregnation submit following information certified by authorized signing officer of treatment plant:
  - .1        Information listed in AWPA M2 and revisions specified in CSA O80 Series, Supplementary Requirement to AWPA M2 applicable to specified treatment.

**1.5                DELIVERY, STORAGE AND HANDLING**

- .1        Deliver, store and handle materials in accordance with the manufacturer's written instructions.

- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with product category, manufacturer's name and address.

## **Part 2 Products**

### **2.1 PRESERVATIVE TREATED WOOD MATERIALS AND APPLICATION**

- .1 Provide preservative treated lumber in accordance with CSA O80 Series and CSA S6 standards as specified below.
- .2 All wood members shall be incised before preservative treatment is applied.
- .3 Treat wood products to CSA O80 Series using one of the following preservatives to obtain minimum net retention of levels specified in CSA S6 Clause 9.17:
  - .1 Chromated copper arsenate
  - .2 Ammoniacal copper
  - .3 Zinc arsenate
  - .4 Alkaline copper quaternary
  - .5 Copper azole type B

### **2.2 PRESERVATIVE FOR FIELD TREATMENT**

- .1 All cuts, bore holes, and other fabrication exposing untreated wood surfaces shall be field treated with copper naphthenate.
- .2 The contractor shall follow the manufacturer's written application instructions.
- .3 A minimum of two coats of preservative shall be applied.

## **Part 3 Execution**

### **3.1 CONSTRUCTION**

- .1 Incorporate treated wood products into construction in accordance with the Contract Drawings.
- .2 Where possible, all surfacing, holes, notches ring grooves, chamfering, and other cuts shall be made before pressure treatment is applied.

### **3.2 FIELD TREATMENT**

- .1 Comply with AWWA M4 and revisions specified in CSA O80 Series, Supplementary Requirements to AWWA M2.
- .2 Re-treat surfaces exposed by cutting, trimming or boring with liberal brush application of recommended preservative before installation.
- .3 Remove chemical deposits from surfaces of treated wood to receive applied finish.

**END OF SECTION**

**Part 1 General**

**1.1 RELATED REQUIREMENTS**

- .1 Section 06 05 73 Wood Treatment.
- .2 Section 07 91 00 Deck Joint Assemblies.

**1.2 REFERENCE STANDARDS**

- .1 ASTM International:
  - .1 ASTM A653/A653M, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
  - .2 ASTM A153/A153M Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
  - .3 ASTM F1667, Standard Specification for Driven Fasteners: Nails, Spikes, and Staples.
  - .4 ASTM D7438, Standard Practice for Field Calibration and Application of Hand-Held Moisture Meters.
- .2 CSA International:
  - .1 CSA S6, Canadian Highway Bridge Design Code.
  - .2 CSA O86, Engineering Design in Wood.
  - .3 CSA 0141, Softwood Lumber.
  - .4 CSA B111, Wire Nails, Spikes and Staples.
  - .5 CSA S16, Design of Steel Structures.
  - .6 CSA G40.20/G40.21, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
  - .7 CSA G164, Hot Dip Galvanizing of Irregularly Shaped Articles.
- .3 Health Canada/Workplace Hazardous Materials Information System (WHMIS):
  - .1 Material Safety Data Sheets (MSDS).
- .4 National Lumber Grades Authority (NLGA):
  - .1 Standard Grading Rules for Canadian Lumber.

**1.3 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for wood decking and include product characteristics, performance criteria, physical size, finish and limitations.
  - .2 Submit two copies of WHMIS MSDS in accordance with Section 01 35 29.06-Health and Safety Requirements.
- .3 Shop Drawings:

- .1 Submit drawings stamped and signed by professional engineer registered or licensed in Ontario, Canada.
- .4 Certifications: submit certificates signed by manufacturer certifying materials comply with specified performance characteristics and physical properties.

#### **1.4 QUALITY ASSURANCE**

- .1 Lumber identification by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.

#### **1.5 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with the manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
  - .1 Store materials off ground, in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Store and protect wood decking from nicks, scratches, and blemishes.
  - .3 Replace defective or damaged materials with new.

### **Part 2 Products**

#### **2.1 MATERIALS**

- .1 Transverse nail-laminated decking to NLGA standard Grading Rules for Canadian Lumber grade: Hem-Fir No. 1/No. 2.
  - .1 CSA 0141 for softwood lumber.
- .2 Decking lengths: 1.8 to 6.1 m or longer with a minimum of 90% planks exceeding 3 m.
- .3 Nails to CSA B111, hot dipped galvanized finish; sizes to CSA O86. Supply minimum length 100: mm.
- .4 Nail Clips to CSA G40.20-13/G40.21 grade 300W.
  - .1 Hot-dip galvanized to CSA G164.
- .5 Wood preservative treatments in accordance with Section 06 05 73 Wood Treatment.

### **Part 3 Execution**

#### **3.1 EXAMINATION**

- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for wood decking installation in accordance with manufacturer's written instructions.
  - .1 Visually inspect substrate in presence of the Contract Administrator.

- .2 Inform Contract Administrator of unacceptable conditions immediately upon discovery.
- .3 Proceed with installation only after unacceptable conditions have been remedied and approval has been received from the Contract Administrator.

### **3.2 INSTALLATION**

- .1 Install work square, true, straight and accurate to required size, in accordance with the Contract Drawings.

Do wood deck work to CSA O86 except where specified otherwise.

- .2 Install decking to CSA O86, three span continuous minimum.
- .3 Stagger end joints in adjacent planks as shown in drawings.
- .4 Apply preservative to end cuts of pressure treated lumber.

### **3.3 FIELD QUALITY CONTROL**

- .1 Perform Field quality control in accordance with Section 01 45 00 Quality Control.
- .2 Testing:
  - .1 Testing moisture content of delivered material will be by moisture metre with adjustments for species and temperature. Testing to be done in accordance with ASTM D7438.
  - .2 Contractor will be responsible for costs of testing.

### **3.4 CLEANING**

- .1 Progress Cleaning: clean in accordance with Section 01 74 11- Cleaning.
  - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11- Cleaning.

### **3.5 PROTECTION**

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by wood decking installation.

**END OF SECTION**

**Part 1 General**

**1.1 RELATED REQUIREMENTS**

- .1 Section 05 50 00- Metal Fabrications.

**1.2 REFERENCE STANDARDS**

- .1 ASTM International
  - .1 ASTM A123/A123M, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
  - .2 ASTM A307, Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.
  - .3 ASTM A572 /A572M, Standard Specification for High Strength Low-Alloy Columbium-Vanadium, Structural steel
  - .4 ASTM F2329/F2329M Standard Specification for Zinc Coating, Hot-Dip, Requirements for Application to Carbon and Alloy Steel Bolts, Screws, Washers, Nuts, and Special Threaded Fasteners
  - .5 ASTM A153/A153M Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
- .2 CSA Group
  - .1 CSA S6, Canadian Highway Bridge Design Code.
  - .2 CSA O86, Engineering Design in Wood.
  - .3 CSA S16, Design of Steel Structures.
  - .4 CSA B111, Wire Nails, Spikes and Staples.
  - .5 CSA G40.20/G40.21, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
  - .6 CAN/CSA O80 Series, Wood Preservation.
  - .7 CSA O112.9, Evaluation of Adhesives for Structural Wood Products (Exterior Exposure).
  - .8 CAN/CSA-O122, Structural Glued-Laminated Timber.
  - .9 CSA O177, Qualification Code for Manufacturer's of Structural Glued-Laminated Timber.
  - .10 CSA W47.1, Certification of Companies for Fusion Welding of Steel Structures.
- .3 National Lumber Grades Authority (NLGA):
  - .1 Standard Grading Rules for Canadian Lumber 2010.

**1.3 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00- Submittal Procedures.
- .2 Product Data:

- .1 Submit manufacturer's instructions, printed product literature and data sheets for glued-laminated construction and include product characteristics, performance criteria, physical size, finish and limitations.
- .2 Submit copies of WHMIS SDS in accordance with Section 01 35 29.06- Health and Safety Requirements.
- .3 Shop Drawings:
  - .1 Submit drawings stamped and signed by professional engineer registered or licensed in Ontario, Canada.
  - .2 Submit erection drawings in accordance with CSA O86.
  - .3 Shop drawings for members: indicate stress grade, service grade and appearance grades, shop applied finishes, camber, cuts, ledgers, holes and connection details.
- .4 Certifications: submit certificates signed by manufacturer certifying materials comply with specified performance characteristics and physical properties.
  - .1 Submit manufacturer's plant certification to CSA O177, Appendix B at completion of fabrication.
- .5 Manufacturer's Instructions: submit manufacturer's installation instructions and special handling criteria, installation sequence, cleaning procedures.
- .6 Manufacturers Reports:
  - .1 Manufacturer's Field Reports: submit manufacturer's written reports within 3 days of review, verifying compliance of Work, as described in .

#### **1.4 QUALITY ASSURANCE**

- .1 Qualifications:
  - .1 Manufacture structural glued-laminated members in plant certified by CSA as meeting requirements of CSA O177.
  - .2 Submit certificate in accordance with CSA O177, Appendix B at completion of fabrication.
  - .3 Fabricator for welded steel connections certified to CSA W47.1.
  - .4 Place authorization labels on glued-laminated members indicating manufactured in CSA certified plant.
  - .5 Certification of material protective sealer.

#### **1.5 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with Section with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements:
  - .1 Deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
  - .2 Apply protective sealer to glued-laminated units before shipping unless specified otherwise.
  - .3 Wrap members prior to leaving plant with moisture resistant wrapping.
  - .4 Use padded, non-marring slings for handling glued-laminated members.

- .5 Protect corners with wood blocking.
- .6 Make adequate provision for delivery and handling stresses.
- .3 Storage and Handling Requirements:
  - .1 Store materials off ground and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Slit underside of membrane covering during storage at site without defacing member.
  - .3 Store glued-laminated units and protect from weather, block off ground and separate with stripping, so air may circulate around faces of members.
  - .4 Cover glued-laminated units with opaque moisture resistant membrane if stored outside.
  - .5 Store and protect glued-laminated products from nicks, scratches, and blemishes.
  - .6 Replace defective or damaged materials with new.

## **Part 2 Products**

### **2.1 MATERIALS**

- .1 Laminating stock:
  - .1 Douglas Fir-Larch, to CAN/CSA-O122 and NLGA Standard Grading Rules for Canadian Lumber.
- .2 Laminating Adhesive:
  - .1 To CSA O112.10, to grade of service required in accordance with CAN/CSA-O122.
  - .2 Urea-formaldehyde free.
- .3 Wood preservative treatments in accordance with Section 06 05 73- Wood Treatment.
- .4 Sealer for glued-laminated members: penetrating type, clear, non-yellowing liquid.
- .5 Fastenings:
  - .1 Bolts: to ASTM A307.
  - .2 Galvanizing for bolts, nuts and washers: to ASTM F2329/F2329M and ASTM A153/A153M.
  - .3 Side plates: to CSA G40.20/G40.21 350W or ASTM A572 Grade 42.
  - .4 Nails and spikes: to CSA B111.
- .6 Galvanizing: to ASTM A123/A123M, hot dipped, minimum zinc coating of 610 g/m<sup>2</sup>.

### **2.2 FABRICATION**

- .1 Fabricate members to following classifications:
  - .1 Stress grade: to 16c-E compression grade.
  - .2 Service grade: exterior.
  - .3 Appearance grade: industrial.



- .2 Mark laminated members for identification during erection.
- .3 Design connections to CSA O86, and CSA S16 unless specifically detailed, to resist shears, moments and forces indicated.
  - .1 Fabricate in accordance with CSA S16.
- .4 Galvanize connections after fabrication.

### **2.3 APPEARANCE GRADE**

- .1 Structural glued-laminated timber industrial grade.

### **2.4 FACTORY FINISHING**

- .1 Prepare steel connection surfaces to applicable requirements of Section 05 50 00- Metal Fabrications.
- .2 Galvanize steel fastenings after fabrication

### **2.5 PRESERVATIVE TREATMENT**

- .1 After fabrication, pressure treat members with preservative in accordance with CAN/CSA-O80 Series.

## **Part 3 Execution**

### **3.1 EXAMINATION**

- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts acceptable for glue-laminated material installation in accordance with manufacturer's written instructions.
  - .1 Visually inspect substrate in presence of the Contract Administrator.
  - .2 Inform the Contract Administrator of unacceptable conditions immediately upon discovery.
  - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed the Contract Administrator .

### **3.2 PRESERVATIVE TREATMENT**

- .1 Pressure treat all members with preservative in accordance with CAN/CSA O80 Series after fabrication.

### **3.3 ERECTION**

- .1 Protect protective sealer from damage before erection.
  - .1 Touch up damaged areas on site with specified sealer.
- .2 Erect glued-laminated members in accordance with reviewed erection drawings and the best accepted practices.
- .3 Brace and anchor members until permanently secured by structure, if necessary.
- .4 Make adequate provisions for erection stresses.

- .5 Splice and join only at locations as indicated on reviewed erection drawings.
- .6 Field cutting or altering members without the Contract Administrator's approval is prohibited. If approved, preservative treat cut ends.

### **3.4 FIELD QUALITY CONTROL**

- .1 Manufacturer's Field Services:
  - .1 Obtain written report from manufacturer verifying compliance of Work, in handling, installing, protecting and cleaning of product.
  - .2 Submit manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.
  - .3 Schedule site visits:
    - .1 After delivery and storage of products, and when preparatory Work, or other Work, on which Work of this Section depends, complete but before installation begins.
    - .2 Once during progress of Work at the installation of the members.
    - .3 Upon completion of Work, after cleaning is carried out.

### **3.5 CLEANING**

- .1 Progress Cleaning and Final Cleaning in accordance with Section 01 74 11- Cleaning.
  - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11- Cleaning.

### **3.6 PROTECTION**

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by glued-laminated construction installation.

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.1 RELATED REQUIREMENTS**

1. Section 06 15 00 Wood Decking.

### **1.2 REFERENCE STANDARDS**

1. ATSM International:
  1. ASTM A307-14e1, Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60,000 psi Tensile Strength.
2. American Society of Mechanical Engineers:
  1. ASME B18.2.1-12, Square, Hex, Heavy Hex, and Askew Head Bolts and Hex, Heavy hex, Hex Flange, Lobed Head, and Lag Screws.
3. CSA Group:
  1. CSA S6, Canadian Highway Bridge Design Code.
  2. CSA S16, Design of Steel Structures.
  3. CSA G40.20/G40.21, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
  4. CSA G164, Hot Dip Galvanizing of Irregularly Shaped Articles.
  5. CSA W59-18, Welded Steel Construction (Metal Arc Welding).
  6. CSA W48-18, Filler Metals and Allied Materials for Metal Arc Welding.

### **1.3 SUMMARY**

1. Section Includes:
  1. Expansion joint, neoprene elastomeric compression seals (compression seals).
  2. Expansion joint, deck side armoring angles (armoring angles).

### **1.4 ACTION SUBMITTALS**

1. Submit in accordance with Section 01 33 00- Submittal Procedures.
2. Shop Drawings:
  1. Submit drawings stamped and signed by professional engineer registered in Ontario, Canada.
3. Product Data:
  1. Submit manufacturer's instructions, printed product literature and data sheets for each product used and include product characteristics, performance criteria, physical size, finish and limitations.
  2. Submit two copies of WHMIS MSDS.
4. Compression Seals:

1. Manufacturer's product to describe:
  1. Lubricant adhesive.
  2. Cleaning solvent.
  3. Cyanoacrylate adhesive for bonding splices.
2. Preformed Joint Seal Schedule to include the following information:
  1. Joint seal location and designation.
  2. Joint width and movement capability.
  3. Joint seal manufacturer and product name.
  4. Joint seal color.
5. Armoring angles:
  1. Certifications: submit certificates signed by manufacturer certifying materials comply with the specified performance characteristics and physical properties in the Contract Documents.

#### **1.5 INFORMATIONAL SUBMITTALS**

1. Product Test Reports: For each preformed joint seal for tests performed by a qualified testing agency.

#### **1.6 CLOSEOUT SUBMITTALS**

1. Submit operation and maintenance data for incorporation into manual in accordance with Section 01 78 00- Closeout Submittals.

#### **1.7 QUALITY ASSURANCE**

1. Test Reports: submit certified test reports showing compliance with specified performance characteristics and physical properties.
2. Certifications: submit certificates signed by manufacturer certifying materials comply with the specified performance characteristics and physical properties in the Contract Documents.

#### **1.8 DELIVERY, STORAGE AND HANDLING**

1. Deliver, store and handle materials in accordance with the manufacturer's written instructions.
2. Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
3. Storage and Handling Requirements:
  1. Store materials and in accordance with manufacturer's recommendations.
  2. Replace defective or damaged materials.

## **1.9 WARRANTY**

1. Warranty: Installer agrees to repair or replace preformed joint seals that do not comply with performance and other requirements specified in this Section within specified warranty period.
  1. Warranty Period: Two years from date of Substantial Completion.

## **PART 2 - PRODUCTS**

### **2.1 NEOPRENE ELASTOMERIC COMPRESSION SEALS**

1. Manufacturer's standard compression seal consisting of neoprene elastomer placed using a lubricant adhesive.
  1. Manufacturers: Subject to compliance with requirements, provide the following products:
    1. Watson Bowman ACME, Wabo ® Compression Seal- Bridge Series.
    2. Or approved equivalent.
  2. Joint Size: As indicated on the Contract Drawings.
  3. Joint Seal Color: As indicated by manufacturer's designations.
  4. Adhesive: As recommended by manufacturer for substrate.

### **2.2 ARMORING ANGLE**

1. Deck Side Joint Armoring Angles and bearing bar plate to: CSA G40.20/G40.21- Grade 300W.
  1. Shop Galvanizing: to CSA- G164.
  2. Welding materials: to CSA W59.
  3. Welding electrodes: to CSA W48 Series.
2. Carriage Bolts with Dome Head to ASTM A307.
3. Lag Screws to ASME B.18.2.1, SAE J429 Grade 1.

### **2.3 MISCELLANEOUS MATERIALS**

1. Cleaners for Joint Substrate Surfaces: Chemical cleaners acceptable to preformed joint seal manufacturer, free of oily residues or other substances capable of staining or harming joint substrates and adjacent surfaces and formulated to promote best adhesion to joint substrates.
2. Masking Tape: Nonstaining, nonabsorbent material compatible with preformed joint seals and surfaces adjacent to joints.

### **PART 3 - EXECUTION**

#### **3.1 EXAMINATION**

1. Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for installation in accordance with manufacturer's written instructions.
  1. Visually inspect substrate conditions in the presence of the Contract Administrator.
  2. Inform the Contract Administrator of unacceptable conditions immediately upon discovery.
  3. Proceed with installation only after unacceptable conditions are remedied and after approval to proceed has been received from the Contract Administrator.
2. Examine joints to receive compression seals, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting the compression seal performance.
3. Proceed with installation only after unsatisfactory conditions have been corrected.

#### **3.2 PREPARATION**

1. Recess the nail laminated deck ends in accordance with the Contract Drawings to accommodate installation of the deck side armoring angles.
2. Surface Cleaning of Joints: Clean out the joints immediately before installing compression seals to comply with the manufacturer's written installation instructions and the following requirements:
  1. Remove all foreign material from joint substrates that could interfere with adhesion of preformed joint seal, including dust, paints (except for permanent protective coatings tested and approved for seal adhesion and compatibility by seal manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
3. Where necessary to prevent staining, mask protect adjacent surfaces prior to applying lubricant adhesives.

#### **3.3 SITE CONDITIONS**

1. Proceed with installation of the joint seals only when:
  1. Ambient and substrate temperature conditions are within limits permitted by joint sealant manufacturer.
  2. Joint substrates are dry.
  3. Conform to manufacturer's recommended temperatures, relative humidity, and substrate moisture content for application and curing of seals including special conditions governing use.
2. Proceed with installation of compression seals only where joint widths are in agreement with the manufacturer tolerances the Contract Drawings.

3. Proceed with installation of joint seals only after contaminants capable of interfering with adhesion are removed from joint substrates.

### **3.4 FABRICATION**

1. Fabricate work square, true, straight and accurate to the required sizes, with joints closely fitted and properly secured.
2. Weld materials in accordance with CSA W59.
  1. Welding electrodes to CSA W48.
  2. Exposed welds should be continuous for the length of each joint.
  3. File or grind exposed welds smooth and flush.

### **3.5 INSTALLATION**

1. Install metalwork square, plumb and true, assuring an accurate fit.
2. Recess the deck ends to fit the deck angle armoring and provide anchorage for the deck armoring in accordance with the Contract Drawings.
3. Supply components for work in accordance with the Contract Drawings and Project Schedule.
4. Touch-up, welds, bolts and burnt or scratched surfaces with zinc rich primer after completion.
5. Comply with preformed compression seal manufacturer's written installation instructions for products and applications indicated unless more stringent requirement apply.

### **3.6 PROTECTION**

1. Protect deck angle armoring and preformed joint seals from damage resulting from construction operations or other causes so they are without deterioration or damage at the time of Substantial Completion.
2. If, damage or deterioration occurs, cut out, remove, and repair damaged or deteriorated areas immediately so that installations with repaired areas are indistinguishable from the original work.

**END OF SECTION**